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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
|-----------------|-------------|----------------------|---------------------|------------------|

09/818,814

03/27/2001

Donald G. Newberg

CM04753H

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10/04/2004

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EXAMINER

TON, ANTHONY T

ART UNIT

PAPER NUMBER

2661

DATE MAILED: 10/04/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

| | | | |
|------------------------------|--------------------------------------|---------------------------------------|--|
| Office Action Summary | Application No. 09/818,814 | Applicant(s) NEWBERG ET AL. | |
| | Examiner Anthony T Ton | Art Unit 2661 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 27 March 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 27 March 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.



PHIRIN SAM

Attachment(s)

- | | |
|---|---|
| <p>1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)</p> <p>2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)</p> <p>3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____</p> | <p style="text-align: center;">PRIMARY EXAMINER</p> <p>4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____</p> <p>5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)</p> <p>6) <input type="checkbox"/> Other: _____</p> |
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DETAILED ACTION

Specification

1. **The disclosure** is objected to because of the following informalities:

a) Term “**subslot 102, 104**” in page 2 line 25 is improper.

Examiner suggests changing this term to “**subslots 102, 104**”.

b) Phrase “DESCRIPTION OF A PREFERRED EMBODIMENT” in page 6 line 3 is improper.

Examiner suggests changing this phrase to “**SUMMARY OF THE INVENTION**”; and inserting a line for the phrase “**DETAILED DESCRIPTION OF A PREFERRED EMBODIMENT**” between the lines 23 and 24 of the page 6.

c) the application Serial No. “**TBD**” in page 7 line 2 is improper.

Examiner suggests replace the term “TBD” by an appropriate Serial No.

Appropriate correction is required.

Claim Objections

2. **Claim 18** is objected to because of the following informalities:

Term “**A apparatus**” in line 1 of the claim is improper.

Examiner suggests changing this term to “**An apparatus**”.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. **Claims 1, 12 and 18** are rejected under 35 U.S.C. 102(b) as being anticipated by **Malkamaki et al.** (US Patent No. **5,577,024**) hereinafter referred to as **Malkamaki**.

a) **In Regarding to Claim 1: Malkamaki disclosed** in a communication system adapted for communicating information in one or more time slots within a predetermined bandwidth, wherein at least one of the time slots includes at least two subslots that are non-overlapping in frequency (*see Fig.5; col.4 line 51- col.5 line14*), a method comprising:

communicating information, by at least one communication unit, in a selected one or more of the subslots (*see col.2 line 61- col.3 line 6*).

b) **In Regarding to Claim 12: Malkamaki disclosed** an apparatus for sending information over a communication channel that has been divided into time slots, the apparatus comprising:

a transmitter operable to transmit information in a selected one or more of a plurality of subslots into which at least one of the time slots has been divided such that the subslots are non-overlapping in frequency (*see col.4 lines 17-23*).

c) **In Regarding to Claim 18: Malkamaki disclosed** an apparatus for obtaining information sent over a communication channel that is divided into time slots, at least one time slot comprising a plurality of subslots that are non-overlapping in frequency (*see Fig.5; col.4 line 51- col.5 line14*), the apparatus comprising:

a receiver operable to receive information in one or more of the plurality of subslots (*see Fig.2*).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. **Claims 10, 11, 13 and 17** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Malkamaki et al.** (US Patent No. 5,577,024) in view of **Kim** (US Patent No. 6,172,971).

a) **In Regarding to Claims 10 and 11: Malkamaki disclosed** all aspects of these claims as set forth in claim 1.

Malkamaki failed to explicitly disclose claimed subject matters of wherein the step of communicating information comprises: transmitting information in a first number of subslots by a first communication unit having a first priority; and transmitting information in a second number of subslots by a second communication unit having a second priority (as recited in claim 10); and wherein the first number is greater than the second number if the first priority is higher than the second priority (as recited in claim 11).

Kim explicitly disclosed such claimed subject matters of the instant claims (*see Fig.2A and col.3 lines 4-13*).

At the time of the invention, **it would be obvious** to a person of ordinary skill in the art to combine such claimed subject matters of the instant claims, as taught by Kim with Malkamaki, so that a higher priority request of a communication unit can be allocated in an associated higher order. **The motivation** for doing so would have been to provide a procedure for forming a frame structure which is suitable for effectively transmitting voice and data in a TDMA communication

system. Therefore, it would have been obvious to combine Kim with Malkamaki in the invention as specified in the claims.

b) In Regarding to Claims 13 and 17: Malkamaki disclosed all aspects of these claims as set forth in claim 12.

Both Malkamaki and Kim failed to explicitly disclose claimed subject matters of a symbol insertion element operable to format the information to fit into the selected one or more of the plurality of subslots, yielding formatted information which is then forwarded to the transmitter (as recited in claim 13); and wherein the transmitter is selected from the group consisting of wireless radio units, cellular radio/telephones, wireless modems, computer modems, cable modems, satellite transmitters, satellite ground stations and fiber optic repeaters (as recited in claim 17).

However, a symbol insertion element and a transmitter that is selected from the group consisting of wireless radio units, cellular radio/telephones, wireless modems, computer modems, cable modems, satellite transmitters, satellite ground stations and fiber optic repeaters are well known in the area of the invention.

Official notice is taken such a symbol insertion element and such a transmitter for processing and transmitting bit streams in a wireless communication network in the subject matter area of the invention. Therefore, **it would have been obvious** to include in Malkamaki of such a symbol insertion element and such a transmitter, since they are well known in the environment of the invention and would make Malkamaki more reliability and availability.

7. **Claims 1-9, 12, 14-16, and 18-20** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Eng** (US Patent No. **6,370,153**) in view of **Petranovich et al.** (US Patent No. **5,946,624**) hereinafter referred to as **Petranovich**.

a) **In Regarding to Claim 1: Eng disclosed** in a communication system adapted for communicating information in one or more time slots within a predetermined bandwidth, wherein at least one of the time slots includes at least two subslots (*see col.7 lines 31-36; col.11 lines 49-51*) that are non-overlapping in frequency (*see col.11 lines 28-37*), a method comprising:

communicating information, by at least one communication unit, in a selected one or more of the subslots (*see col.7 lines 36-38*).

Eng did not clearly disclose at least two subslots that are non-overlapping in frequency.

Petranovich explicitly disclosed such at least two subslots that are non-overlapping in frequency (*see Fig.6: $F_1 - F_7$*).

At the time of the invention, **it would be obvious** to a person of ordinary skill in the art to combine such at least two subslots that are non-overlapping in frequency, as taught by Petranovich with Eng, so that in a subslot of time a plurality of communication units can be simultaneously communicated with a base station without collision. **The motivation** for doing so would have been to save bandwidth for communication between a base station controller and communication units in a wireless communication network. Therefore, it would have been obvious to combine Petranovich with Eng in the invention as specified in the claim.

b) **In Regarding to Claims 2 and 3: Eng disclosed** all aspects of these claims as set forth in claim 1.

Both Eng and Petranovich failed to explicitly disclose the claimed subject matters of transmitting information in a first one of the subslots by a first communication unit, and transmitting information in a second one of the subslots by a second communication unit (as recited in Claim 2); and transmitting, by the at least one communication unit, information in a plurality of the subslots (as recited in Claim 3).

However, **Eng obviously disclosed** such claimed subject matters because **Eng disclosed** that whenever a time slot of a upstream channel is not used for ordinary payload communication, it can be divided into two or more equally sized sub-slots for transmission control information. A communication unit (*the first communication unit*) can communicate by transmitting a request packet in one of the sub-slots of a time slot not previously assigned for payload communication (*see col.7 lines 32-38*). By this manner, it is obviously that the remaining sub-slots would be either assigned to other communication units (*the second communication unit*), or assigned to the first communication unit.

Therefore, at the time of the invention, **it would be obvious** to a person of ordinary skill in the art to implement such claimed subject matters throughout the invention of Eng as described above, so that a communication unit can be communicated with a controller effectively. **The motivation** for doing so would have been to provide one or more subslots of a time slot can be used by one or more communication units to communicate with a controller in a wireless communication network. Thus, **it would have been obvious** to implement such claimed subject matters throughout the invention as taught by Eng as specified in the claims.

c) **In Regarding to Claim 4: Eng further disclosed** the method of claim 3 wherein the communication unit communicates identical information in each of the plurality of the subslots

thereby increasing the probability of the information reaching a receiver (*see col.5 lines 27-41 and col.11 lines 52-65*).

d) **In Regarding to Claims 5 and 7: Eng disclosed** all aspects of these claims as set forth in claim 1.

Eng failed to explicitly disclose wherein the at least two subslots include two subslots that are adjacent in frequency; and wherein the at least two subslots include three subslots that are adjacent in frequency.

Petranovich explicitly disclosed such wherein the at least two subslots include two and three subslots that are adjacent in frequency (*see Fig.14: $F_1 - F_3$ in the slots T1 and T2*).

At the time of the invention, **it would be obvious** to a person of ordinary skill in the art to combine such wherein the at least two subslots include two and three subslots that are adjacent in frequency, as taught by Petranovich with Eng, so that a communication unit can communicate with a base station in different frequencies to avoid interference with other communication units. **The motivation** for doing so would have been to save bandwidth for communication between a base station controller and communication units in a wireless communication network. Therefore, it would have been obvious to combine Petranovich with Eng in the invention as specified in the claims.

e) **In Regarding to Claim 6: Eng further disclosed** the method of claim 1, wherein the predetermined bandwidth is 100 kHz, the at least two subslots comprising a first and second subslot each having a 50 kHz bandwidth (*see col.11 lines 40-45*).

f) **In Regarding to Claim 8:** Eng disclosed all aspects of this claim as set forth in the claim 1; and Eng further disclosed wherein the predetermined bandwidth is 150 kHz (*see col.11 lines 40-45*),

Both Eng and Petranovich failed to explicitly disclose the at least two subslots comprising a first, second and third subslot each having a 50 kHz bandwidth.

However, with a predetermined bandwidth of 150 kHz and such a bandwidth is divided into three sub-bandwidths, one can surely get a 50 KHz bandwidth for such a division.

Therefore, it would have been obvious to one of ordinary skilled in the art can implement such the at least two subslots comprising a first, second and third subslot each having a 50 kHz bandwidth throughout the invention of Eng as a design choice. The motivation for doing so would have been to provide an appropriate bandwidth for each corresponding subslot of time in a wireless communication network. Thus, it would have been obvious to implement such the at least two subslots comprising a first, second and third subslot each having a 50 kHz bandwidth throughout Eng as specified in the claim.

g) **In Regarding to Claim 9:** Eng further disclosed the method of claim 1 comprising, prior to the step of communicating information in a selected one or more of the subslots:

randomly choosing, by the at least one communication unit, one or more of the subslots, thereby defining the selected one or more of the subslots (*see col.22 lines 16-54*).

h) **In Regarding to Claim 12:** all claimed subject matters of this claim are the same as that of claim 1, except for a transmitter; however, Eng also disclosed such a transmitter (*see Fig.10A: block 156*).

Therefore, it would have been obvious to combine Petranovich with Eng for the same reason as in Claim 1.

i) In Regarding to Claim 14: Eng further disclosed the apparatus of claim 12 wherein the transmitter randomly selects the one or more of the plurality of subslots to transmit in (*see col.22 lines 16-54*).

j) In Regarding to Claim 15: Eng further disclosed the apparatus of claim 12 wherein the transmitter uses a multiple subchannel signal to transmit the information in the one or more selected subslots (*see Fig.10B and col.1 lines 15-23*).

k) In Regarding to Claim 16: Eng further disclosed the apparatus of claim 12 wherein the transmitter sends identical information in a plurality of subslots to increase the probability that the information will be received by a receiver (*see col.5 lines 27-41 and col.11 lines 52-65*).

l) In Regarding to Claim 18: all claimed subject matters of this claim are the same as that of claim 1, **except for a receiver; however, Eng also disclosed** such a receiver (*see Fig.10A: block 154*).

Therefore, it would have been obvious to combine Petranovich with Eng for the same reason as in Claim 1.

m) In Regarding to Claim 19: Eng further disclosed the apparatus of claim 18 further comprising a demultiplexer that deformats synchronization, pilot and data symbols from the information received in the one or more of the plurality of subslots (*see Fig.14*).

n) In Regarding to Claim 20: Eng further disclosed the apparatus of claim 18 wherein the receiver is adapted to demodulate a multiple subchannel signal. (*see Fig.14: block 255 and Fig.15*).

8. **Claims 10 and 11** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Eng** (US Patent No. 6,370,153) in view of **Petranovich et al.** (US Patent No. 5,946,624) as applied to claims 1-9 above, and further in view of **Kim** (US Patent No. 6,172,971).

Eng disclosed all aspects of these claims as set forth in claim 1.

Both Eng and Petranovich failed to explicitly disclose claimed subject matters of wherein the step of communicating information comprises: transmitting information in a first number of subslots by a first communication unit having a first priority; and transmitting information in a second number of subslots by a second communication unit having a second priority (as recited in claim 10); and wherein the first number is greater than the second number if the first priority is higher than the second priority (as recited in claim 11).

Kim explicitly disclosed such claimed subject matters of the instant claims (*see Fig.2A and col.3 lines 4-13*).

At the time of the invention, **it would be obvious** to a person of ordinary skill in the art to combine such claimed subject matters of the instant claims, as taught by Kim with Eng, so that a higher priority request of a communication unit can be allocated in an associated higher order.

The motivation for doing so would have been to provide a procedure for forming a frame structure which is suitable for effectively transmitting voice and data in a TDMA communication system. Therefore, it would have been obvious to combine Kim with Eng in the invention as specified in the claims.

Examiner Information

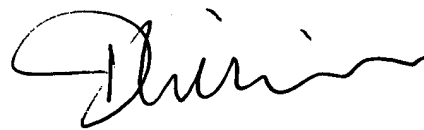
9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to **Anthony T Ton** whose telephone number is **571-272-3076**. The examiner can normally be reached on M-F: 8:00 am - 4:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, **Ken Vanderpuye** can be reached on **571-272-3078**. The fax phone number for the organization where this application or proceeding is assigned is **571-273-3076**.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

ATT

9/22/04


**PHIRIN SAM
PRIMARY EXAMINER**